

TRANSPORTATION

Appendix 21-A3

FDOT Level of Service Tables

Tables 4-4 thru 4-6

**TABLE 4 - 4
GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S
URBANIZED AREAS***

UNINTERRUPTED FLOW HIGHWAYS						FREEWAYS					
Level of Service						Interchange spacing ≥ 2 mi. apart					
Lanes Divided	A	B	C	D	E	Lanes	A	B	C	D	E
2 Undivided	180	620	1,210	1,720	2,370	4	2,310	3,840	5,350	6,510	7,240
4 Divided	1,940	3,140	4,540	5,870	6,670	6	3,580	5,930	8,270	10,050	11,180
6 Divided	2,900	4,700	6,800	8,810	10,010	8	4,840	8,020	11,180	13,600	15,130
STATE TWO-WAY ARTERIALS						Interchange spacing < 2 mi. apart					
Class I (>0.00 to 1.99 signalized intersections per mile)						Level of Service					
Lanes Divided	A	B	C	D	E	Lanes	A	B	C	D	E
2 Undivided	**	400	1,310	1,560	1,610	4	2,050	3,350	4,840	6,250	7,110
4 Divided	460	2,780	3,300	3,390	***	6	3,240	5,250	7,600	9,840	11,180
6 Divided	700	4,240	4,950	5,080	***	8	4,420	7,160	10,360	13,420	15,240
8 Divided	890	5,510	6,280	6,440	***	10	5,600	9,070	13,130	16,980	19,310
Class II (2.00 to 4.50 signalized intersections per mile)						Level of Service					
Lanes Divided	A	B	C	D	E	12	6,780	10,980	15,890	20,560	23,360
2 Undivided	**	180	1,070	1,460	1,550	BICYCLE MODE					
4 Divided	**	390	2,470	3,110	3,270	(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					
6 Divided	**	620	3,830	4,680	4,920	Paved Shoulder Bicycle Lane					
8 Divided	**	800	5,060	6,060	6,360	Coverage					
Class III (more than 4.5 signalized intersections per mile and not within primary city central business district of an urbanized area over 750,000)						Level of Service					
Lanes Divided	A	B	C	D	E	0-49%					
2 Undivided	**	**	500	1,200	1,470	50-84%					
4 Divided	**	**	1,180	2,750	3,120	85-100%					
6 Divided	**	**	1,850	4,240	4,690	300 680 >680 *** **					
8 Divided	**	**	2,450	5,580	6,060	PEDESTRIAN MODE					
Class IV (more than 4.5 signalized intersections per mile and within primary city central business district of an urbanized area over 750,000)						(Note: Level of service for the pedestrian mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of pedestrians using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Sidewalk Coverage					
2 Undivided	**	**	490	1,310	1,420	0-49%					
4 Divided	**	**	1,170	2,880	3,010	50-84%					
6 Divided	**	**	1,810	4,350	4,520	85-100%					
8 Divided	**	**	2,460	5,690	5,910	** ** 210 1,080 >1,080 ***					
NON-STATE ROADWAYS						BUS MODE (Scheduled Fixed Route)					
Major City/County Roadways						(Buses per hour)					
Level of Service						(Note: Buses per hour shown are only for the peak hour in the single direction of higher traffic flow.)					
Lanes Divided	A	B	C	D	E	Level of Service					
2 Undivided	**	**	870	1,390	1,480	Sidewalk Coverage					
4 Divided	**	**	2,030	2,950	3,120	0-84%					
6 Divided	**	**	3,170	4,450	4,690	85-100%					
Other Signalized Roadways (signalized intersection analysis)						A B C D E					
Level of Service						A B C D E					
Lanes Divided	A	B	C	D	E	2 Undivided ** ** 450 950 1,200					
2 Undivided	**	**	450	950	1,200	4 Divided ** ** 1,050 2,070 2,400					
4 Divided	**	**	1,050	2,070	2,400						
Source: Florida Department of Transportation Systems Planning Office 605 Suwannee Street, MS 19 Tallahassee, FL 32399-0450 http://www11.myflorida.com/planning/systems/sm/los/default.htm						02/22/02					
						ARTERIAL/NON-STATE ROADWAY ADJUSTMENTS					
						DIVIDED/UNDIVIDED					
						(alter corresponding volume by the indicated percent)					
						Lanes Median Left Turns Lanes Adjustment Factors					
						2 Divided Yes +5%					
						2 Undivided No -20%					
						Multi Undivided Yes -5%					
						Multi Undivided No -25%					
						ONE-WAY FACILITIES					
						Decrease corresponding two-directional volumes in this table by 40% to obtain the equivalent one directional volume for one-way facilities.					

*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. To convert to annual average daily traffic volumes, these volumes must be divided by an appropriate K factor. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.
 **Cannot be achieved using table input value defaults.
 ***Not applicable for that level of service letter grade. For automobile/truck modes, volumes greater than level of service D become F because intersection capacities have been reached. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.

TABLE 4 - 4 (continued)
**GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S
 Urbanized Areas**

INPUT VALUE ASSUMPTIONS

	UNINTERRUPTED FLOW FACILITIES			
	Freeways		Highways	
ROADWAY CHARACTERISTICS				
Number of through lanes	4 - 12	4 - 12	2	4 - 6
Posted speed (mph)	65	50	50	50
Free flow speed (mph)	70	60	55	55
Basic segment length (mi)	1.5	0		
Interchange spacing per mile	2.5	1		
Median (n,y)			n	y
Left turn lanes (n,y)			y	y
Terrain (r,l)	1	1		1
% no passing zone			80	
Passing lanes (n,y)			n	
TRAFFIC CHARACTERISTICS				
Planning analysis hour factor (K)	0.097	0.093	0.095	0.095
Directional distribution factor (D)	0.55	0.55	0.55	0.55
Peak hour factor (PHF)	0.95	0.95	0.925	0.925
Base capacity (pcphpl)			1700	2100
Heavy vehicle percent	6.0	4.0	2.0	2.0
Local adjustment factor	0.98	1.00	1.0	1.0

ROADWAY CHARACTERISTICS	INTERRUPTED FLOW FACILITIES																
	State Arterials				Non-State Roadways				Other Signalized				Bus				
	Class I		Class II		Class III		Class IV		Major City/County		Other Signalized			Bicycle Class II	Pedestrian Class II		
Number of through lanes	2	4 - 6	8	2	4 - 6	8	2	4 - 6	8	2	4 - 6	8	2	4 - 6	4	4	
Posted speed (mph)	45	50	45	45	35	35	30	30	30	30	30	35	35	45	40	40	
Free flow speed (mph)	50	55	50	50	40	40	40	35	35	35	35	40	40	50	45	45	
Median type (n,r,t)	n	r	r	r	n	r	r	n	r	r	r	r	r	n	r	r	
Left turn lanes (n,y)	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	
Paved shoulder/bicycle lane (n,y)																	
Outside lane width (n,t,w)																	
Pavement condition (u,t,d)																	
Sidewalk (n,y)																	
Sidewalk/roadway separation (a,t,w)																	
Sidewalk/roadway protective barrier (n,y)																	
Obstacle to bus stop (n,y)																	
TRAFFIC CHARACTERISTICS																	
Planning analysis hour factor (K)	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Peak hour factor (PHF)	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Base saturation flow rate (pcphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Heavy vehicle percent	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0
Local adjustment factor	1.0	1.0	0.95	0.98	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.90	0.98	0.98	0.98	0.98	0.98
% turns from exclusive turn lanes	12	12	12	12	12	12	12	12	12	12	12	12	14	14	12	12	12
Bus span of service																	15
CONTROL CHARACTERISTICS																	
Signalized intersections per mile	1.5	1.0	1.0	3.0	3.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0	3.0	3.0	3.0	3.0	3.0
Arrival type (1-6)	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Signal type (a,s,f)	a	a	a	s	s	s	s	s	s	s	s	s	s	s	s	s	s
Cycle length (C)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Effective green ratio (g/C)	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.41	0.41	0.44	0.44	0.44

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways				Highways				State Two-Way Arterials				Non-State Roadways				Bicycle	Pedestrian	Bus
	Class III	Class IV	Two-Lane	Multilane	Class I	Class II	Class III	Class IV	Class I	Class II	Class III	Class IV	Major City/County	Other Signalized	Other Signalized	Score			
A	v/c ≤ 0.32	Density ≤ 11	% FFS ≤ 11	v/c ≤ 0.29	Density ≤ 11	ATIS > 42 mph	ATIS > 30 mph	ATIS > 35 mph	ATIS > 35 mph	ATIS > 30 mph	ATIS > 25 mph	ATIS > 25 mph	ATIS > 35 mph	Control Delay ≤ 10 sec	Control Delay ≤ 20 sec	Score ≤ 1.5	Score ≤ 1.5	Buses per hr. > 6	
B	0.32 < v/c ≤ 0.53	11 < Density ≤ 18	11 < % FFS ≤ 18	0.29 < v/c ≤ 0.47	11 < Density ≤ 18	34 < ATIS < 42 mph	28 < ATIS < 35 mph	28 < ATIS < 35 mph	28 < ATIS < 35 mph	28 < ATIS < 35 mph	19 < ATIS < 25 mph	19 < ATIS < 25 mph	28 < ATIS < 35 mph	10 < Control Delay ≤ 20 sec	20 < Control Delay ≤ 35 sec	1.5 < Score < 2.5	1.5 < Score < 2.5	> 4	
C	0.53 < v/c ≤ 0.74	18 < Density ≤ 26	18 < % FFS ≤ 26	0.47 < v/c ≤ 0.68	18 < Density ≤ 26	21 < ATIS < 34 mph	18 < ATIS < 28 mph	18 < ATIS < 28 mph	18 < ATIS < 28 mph	18 < ATIS < 28 mph	13 < ATIS < 19 mph	13 < ATIS < 19 mph	18 < ATIS < 28 mph	35 < Control Delay ≤ 55 sec	35 < Control Delay ≤ 55 sec	2.5 < Score < 3.5	2.5 < Score < 3.5	> 3	
D	0.74 < v/c ≤ 0.90	26 < Density ≤ 35	26 < % FFS ≤ 35	0.68 < v/c ≤ 0.88	26 < Density ≤ 35	16 < ATIS < 21 mph	14 < ATIS < 18 mph	14 < ATIS < 18 mph	14 < ATIS < 18 mph	14 < ATIS < 18 mph	9 < ATIS < 9 mph	9 < ATIS < 9 mph	14 < ATIS < 18 mph	55 < Control Delay ≤ 80 sec	55 < Control Delay ≤ 80 sec	3.5 < Score < 4.5	3.5 < Score < 4.5	> 2	
E	0.90 < v/c ≤ 1.00	35 < Density ≤ 45	35 < % FFS ≤ 45	0.88 < v/c ≤ 1.00	35 < Density ≤ 45	16 < ATIS < 16 mph	10 < ATIS < 10 mph	10 < ATIS < 10 mph	10 < ATIS < 10 mph	10 < ATIS < 10 mph	7 < ATIS < 7 mph	7 < ATIS < 7 mph	10 < ATIS < 10 mph	80 < Control Delay ≤ 80 sec	80 < Control Delay ≤ 80 sec	4.5 < Score < 5.5	4.5 < Score < 5.5	> 1	
F	1.00 < v/c > 45	> 45 Density	> 45 % FFS	> 1.00 v/c	> 41 Density	16 < ATIS < 16 mph	13 < ATIS < 13 mph	13 < ATIS < 13 mph	13 < ATIS < 13 mph	13 < ATIS < 13 mph	7 < ATIS < 7 mph	7 < ATIS < 7 mph	13 < ATIS < 13 mph	> 80 sec Control Delay	> 80 sec Control Delay	5.5 < Score < 5.5	5.5 < Score < 5.5	< 1	

v/c = Demand to Capacity Ratio

% FFS = Percent Free Flow Speed

ATIS = Average Travel Speed

**TABLE 4 – 5
GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S
AREAS TRANSITIONING INTO URBANIZED AREAS OR
AREAS OVER 5,000 NOT IN URBANIZED AREAS***

UNINTERRUPTED FLOW HIGHWAYS						FREEWAYS					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Lanes	A	B	C	D	E
2 Undivided	180	600	1,130	1,590	2,180	4	2,350	3,870	5,250	6,220	6,910
4 Divided	1,790	2,900	4,190	5,420	6,160	6	3,640	5,980	8,110	9,600	10,670
6 Divided	2,680	4,340	6,280	8,130	9,240	8	4,910	8,090	10,960	12,980	14,440
						10	6,180	10,180	13,840	16,380	18,200
STATE TWO-WAY ARTERIALS						BICYCLE MODE					
Class I (>0.00 to 1.99 signalized intersections per mile)						(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Paved Shoulder Bicycle Lane Coverage	A	B	C	D	E
2 Undivided	**	390	1,260	1,490	1,560	0-49%	**	180	310	1,310	>1,310
4 Divided	440	2,680	3,150	3,290	***	50-84%	**	240	390	>390	***
6 Divided	670	4,110	4,730	4,930	***	85-100%	310	680	>680	***	***
Class II (2.00 to 4.50 signalized intersections per mile)						PEDESTRIAN MODE					
Level of Service						(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 40 mph posted speed and traffic conditions, not number of pedestrians using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine two-way maximum service volumes.)					
Lanes Divided	A	B	C	D	E	Sidewalk Coverage	A	B	C	D	E
2 Undivided	**	**	1,010	1,390	1,470	0-49%	**	**	**	600	1,480
4 Divided	**	360	2,340	2,940	3,090	50-84%	**	**	**	940	1,800
6 Divided	**	580	3,640	4,420	4,650	85-100%	**	210	1,080	>1,080	***
Class III (more than 4.5 signalized intersections per mile)						ARTERIAL/NON-STATE ROADWAY ADJUSTMENTS					
Level of Service						DIVIDED/UNDIVIDED					
Lanes Divided	A	B	C	D	E	Lanes	Median	Left Turn Lanes	Adjustment Factors		
2 Undivided	**	**	480	1,130	1,400	2	Divided	Yes	+5%		
4 Divided	**	**	1,130	2,610	2,960	2	Undivided	No	-20%		
6 Divided	**	**	1,770	4,040	4,450	Multi	Undivided	Yes	-5%		
NON-STATE ROADWAYS						Multi					
Major City/County Roadways						Undivided					
Level of Service						No					
Lanes Divided	A	B	C	D	E	Adjustment Factors					
2 Undivided	**	**	670	1,300	1,400	-25%					
4 Divided	**	**	1,570	2,810	2,970						
6 Divided	**	**	2,470	4,230	4,460						
Other Signalized Roadways (signalized intersection analysis)						ONE-WAY FACILITIES					
Level of Service						Decrease corresponding two-directional volumes in this table by 40% to obtain the equivalent one directional volume for one-way facilities.					
Lanes Divided	A	B	C	D	E						
2 Undivided	**	**	430	900	1,150						
4 Divided	**	**	990	1,940	2,300						
Source: Florida Department of Transportation Systems Planning Office 605 Suwannee Street, MS 19 Tallahassee, FL 32399-0450 http://www11.myflorida.com/planning/systems/sm/los/default.htm											
*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are hourly two-way volumes for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes. **Cannot be achieved using table input value defaults. ***Not applicable for the level of service letter grade. For automobile/truck modes, volumes greater than level of service D become F because intersection capacities have been reached. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.											

TABLE 4 - 5 (continued)
**GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S
 AREAS TRANSITIONING INTO URBANIZED AREAS OR AREAS OVER 5,000 NOT IN URBANIZED AREAS**
 INPUT VALUE ASSUMPTIONS

ROADWAY CHARACTERISTICS	UNINTERRUPTED FLOW FACILITIES	
	Freeways Class II 4 - 10	Highways 4 - 6
Number of through lanes	70	2
Posted speed (mph)	50	50
Free flow speed (mph)	75	55
Basic segment length (mi)	3	55
Interchange spacing per mile	4	
Median (n,y)	n	y
Left turn lanes (n,y)	y	y
Terrain (r,l)	1	1
% no passing		60
TRAFFIC CHARACTERISTICS		
Planning analysis hour factor (K)	0.100	0.096
Directional distribution factor (D)	0.55	0.55
Peak hour factor (PHF)	0.910	0.910
Base capacity (pcphpl)	1700	2100
Heavy vehicle percent	9.0	4.0
Local adjustment factor	0.95	0.95

ROADWAY CHARACTERISTICS	INTERRUPTED FLOW FACILITIES									
	State Arterials		Non-State Roadways		Bicycle		Pedestrian		Other Signalized	
	Class I	Class II	Class III	Major City/County	Other Signalized	Class II	Class II	Class II	Class II	Class II
Number of through lanes	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6
Posted speed (mph)	45	45	35	35	40	40	40	40	40	40
Free flow speed (mph)	50	50	40	40	45	45	45	45	45	45
Median type (n,ntr,r)	n	n	n	n	n	n	n	n	n	n
Left turn lanes (n,y)	y	y	y	y	y	y	y	y	y	y
Paved shoulder/bicycle lane (n,y)										
Outside lane width (n,l,w)										
Pavement condition (u,l,d)										
Sidewalk (n,y)										
Sidewalk/roadway separation (a,l,w)										
Sidewalk/roadway protective barrier (n,y)										
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Peak hour factor (PHF)	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910
Base saturation flow rate (pcphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Heavy vehicle percent	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Local adjustment factor	0.98	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
% turns from exclusive turn lanes	12	12	12	12	14	14	14	16	12	12
CONTROL CHARACTERISTICS										
Signalized intersections per mile	1.5	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Arrival type (1-6)	3	4	4	4	4	4	4	3	4	4
Signal type (a,s,f)	a	s	s	s	s	s	s	s	s	s
Cycle length (C)	120	120	120	120	120	120	120	120	120	120
Effective green ratio (g/C)	0.44	0.44	0.44	0.44	0.44	0.41	0.41	0.31	0.44	0.44

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways		Highways		State Two-Way Arterials		Non-State Roadways		Bicycle		Pedestrian	
	Class II	Class I	Two-Lane	Multilane	Class I	Class II	Class III	Major City/County	Other Signalized	Score	Score	Score
A	v/c ≤ 0.34	Density ≤ 11	% FFS ≤ 0.917	Density ≤ 11	ATS > 42 mph	ATS > 35 mph	ATS > 30 mph	ATS > 35 mph	Control Delay ≤ 10 sec	Score ≤ 1.5	Score ≤ 1.5	Score ≤ 1.5
B	v/c ≤ 0.56	Density ≤ 18	> 0.833	≤ 0.47	> 34 mph	> 28 mph	> 24 mph	> 28 mph	< 20 sec	< 2.5	< 2.5	< 2.5
C	v/c ≤ 0.76	≤ 0.68	> 0.750	≤ 0.26	> 27 mph	> 22 mph	> 18 mph	> 22 mph	< 35 sec	< 3.5	< 3.5	< 3.5
D	v/c ≤ 0.90	≤ 0.35	> 0.667	≤ 0.35	> 21 mph	> 17 mph	> 14 mph	> 17 mph	< 55 sec	< 4.5	< 4.5	< 4.5
E	v/c ≤ 1.00	≤ 0.583	> 0.583	≤ 1.00	> 16 mph	> 13 mph	> 10 mph	> 13 mph	< 80 sec	< 5.5	< 5.5	< 5.5
F	v/c > 1.00	> 0.583	≤ 0.583	> 1.00	≤ 16 mph	≤ 13 mph	≤ 10 mph	≤ 13 mph	> 80 sec	> 5.5	> 5.5	> 5.5

v/c = Demand to Capacity Ratio
 % FFS = Percent Free Flow Speed
 ATS = Average Travel Speed

TABLE 4 – 6
GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S
RURAL UNDEVELOPED AREAS AND CITIES OR
DEVELOPED AREAS LESS THAN 5,000 POPULATION*

RURAL UNDEVELOPED AREAS						CITIES OR RURAL DEVELOPED AREAS LESS THAN 5000					
FREEWAYS						FREEWAYS					
Level of Service						Level of Service					
Lanes	A	B	C	D	E	Lanes	A	B	C	D	E
4	2,200	3,670	4,980	5,890	6,550	4	2,220	3,670	4,980	5,890	6,550
6	3,440	5,650	7,690	9,090	10,110	6	3,440	5,650	7,690	9,090	10,110
8	4,650	7,650	10,400	12,310	13,670	8	4,650	7,650	10,400	12,310	13,670
UNINTERRUPTED FLOW HIGHWAYS						UNINTERRUPTED FLOW HIGHWAYS					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Lanes Divided	A	B	C	D	E
2 Undivided	220	630	1,100	1,500	2,040	2 Undivided	220	630	1,100	1,500	2,040
4 Divided	1,730	2,800	4,060	5,250	5,960	4 Divided	1,730	2,800	4,060	5,250	5,960
6 Divided	2,600	4,200	6,080	7,870	8,940	6 Divided	2,600	4,200	6,080	7,870	8,940
INTERRUPTED FLOW ARTERIALS						INTERRUPTED FLOW ARTERIALS					
Level of Service						Level of Service					
Lanes Divided	A	B	C	D	E	Lanes Divided	A	B	C	D	E
2 Undivided	**	210	1,070	1,350	1,450	2 Undivided	**	210	1,070	1,350	1,450
4 Divided	**	520	2,470	2,850	3,020	4 Divided	**	520	2,470	2,850	3,020
6 Divided	**	810	3,820	4,290	4,540	6 Divided	**	810	3,820	4,290	4,540
NON-STATE SIGNALIZED ROADWAYS						NON-STATE SIGNALIZED ROADWAYS					
(signalized intersection analysis)						(signalized intersection analysis)					
Level of Service						Level of Service					
Lanes	A	B	C	D	E	Lanes	A	B	C	D	E
2	**	**	180	740	980	2	**	**	180	740	980
BICYCLE MODE						BICYCLE MODE					
(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 45 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine maximum service volume.)						(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 45 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine maximum service volume.)					
Paved Shoulder/ Bicycle Lane						Paved Shoulder/ Bicycle Lane					
Coverage						Coverage					
Level of Service						Level of Service					
0-49%	**	**	270	670	>670	0-49%	**	**	270	670	>670
50-84%	**	200	340	>340	***	50-84%	**	200	340	>340	***
85-100%	280	390	>390	***	***	85-100%	280	390	>390	***	***
PEDESTRIAN MODE						PEDESTRIAN MODE					
(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)						(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)					
Sidewalk Coverage						Sidewalk Coverage					
Level of Service						Level of Service					
0-49%	**	**	**	430	1,370	0-49%	**	**	**	430	1,370
50-84%	**	**	**	780	1,750	50-84%	**	**	**	780	1,750
85-100%	**	**	920	>920	***	85-100%	**	**	920	>920	***
ISOLATED SIGNALIZED INTERSECTIONS						ISOLATED SIGNALIZED INTERSECTIONS					
Level of Service						Level of Service					
Lanes	A	B	C	D	E	Lanes	A	B	C	D	E
2	**	180	780	1,050	1,190	2	**	180	780	1,050	1,190
4	**	290	1,700	2,250	2,470	4	**	290	1,700	2,250	2,470
6	**	440	2,660	3,480	4,220	6	**	440	2,660	3,480	4,220
PASSING LANE ADJUSTMENTS						PASSING LANE ADJUSTMENTS					
(alter corresponding two-lane LOS A-D volumes indicated percent)						(alter corresponding two-lane LOS A-D volumes indicated percent)					
Adjustment Factors						Adjustment Factors					
Passing Lane Spacing						Passing Lane Spacing					
5 mi.						5 mi.					
10 mi.						10 mi.					
+25%						+25%					
+10%						+10%					
NON-FREEWAY AND SIGNALIZED INTERSECTION ANALYSES DIVIDED/UNDIVIDED ADJUSTMENTS						NON-FREEWAY AND SIGNALIZED INTERSECTION ANALYSES DIVIDED/UNDIVIDED ADJUSTMENTS					
(alter corresponding volumes by the indicated percent)						(alter corresponding volumes by the indicated percent)					
Adjustment Factors						Adjustment Factors					
Lanes						Lanes					
Median						Median					
Left Turn Lanes						Left Turn Lanes					
2						2					
Divided						Divided					
Yes						Yes					
+5%						+5%					
2						2					
Undivided						Undivided					
No						No					
-20%						-20%					
Multi						Multi					
Undivided						Undivided					
Yes						Yes					
-5%						-5%					
Multi						Multi					
Undivided						Undivided					
No						No					
-25%						-25%					
Source: Florida Department of Transportation Systems Planning Office 605 Suwannee Street, MS 19 Tallahassee, FL 32399-0450 http://www11.myflorida.com/planning/systems/sm/los/default.htm						02/22/02 Source: Florida Department of Transportation Systems Planning Office 605 Suwannee Street, MS 19 Tallahassee, FL 32399-0450 http://www11.myflorida.com/planning/systems/sm/los/default.htm					
*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are two-way annual average daily volumes (based on K ₁₀₀ factors) for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes. **Cannot be achieved using table input value defaults. ***Not applicable for the level of service letter grade. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.											

TABLE 4 - 6 (continued)
**GENERALIZED PEAK HOUR DIRECTIONAL VOLUMES FOR FLORIDA'S
 RURAL UNDEVELOPED AREAS AND CITIES OR DEVELOPED AREAS LESS THAN 5,000 POPULATION**
 INPUT VALUE ASSUMPTIONS

UNINTERRUPTED FLOW FACILITIES	
Highways	
ROADWAY CHARACTERISTICS	
Area type (n,r,d)	rd
Class I	rd
Number of through lanes	4-6
Posted speed (mph)	55
Free flow speed (mph)	60
Facility length (mi)	7
Basic segment length (mi)	6
Interchange spacing per mile	7
Median (n,y)	n
Left turn lanes (n,y)	y
Terrain (t,l)	l
% no passing zone	20
Passing lanes (n,y)	n
TRAFFIC CHARACTERISTICS	
Planning analysis hour factor (K)	0.098
Directional distribution factor (D)	0.55
Peak hour factor (PHF)	0.88
Base capacity (pephpl)	1700
Heavy vehicle percent	5.0
Local adjustment factor	0.90

INTERRUPTED FLOW FACILITIES	
Non-State Signalized	
ROADWAY CHARACTERISTICS	
Area type (n,r,d)	rd
Class I	rd
Number of through lanes	4-6
Posted speed (mph)	45
Free flow speed (mph)	50
Median type (n,r,t)	t
Left turn lanes (n,y)	y
Paved shoulder/bicycle lane (n,y)	y
Outside lane width (n,t,w)	n
Pavement condition (a,t,d)	t
Sidewalk (n,y)	n
Sidewalk roadway separation (a,t,w)	n
Sidewalk roadway protective barrier (n,y)	n
TRAFFIC CHARACTERISTICS	
Planning analysis hour factor (K)	0.097
Directional distribution factor (D)	0.55
Peak hour factor (PHF)	0.88
Base saturation flow rate (pephpl)	1900
Heavy vehicle percent	5.0
Local adjustment factor	0.90
% turns from exclusive turn lanes	12
CONTROL CHARACTERISTICS	
Signalized intersections per mile	2.0
Arrival type (1-6)	3
Signal type (a,s,f)	s
Cycle length (C)	60
Effective green ratio (g/C)	0.44

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways		Highways		Isolated Intersections		Arterials		Bicycle		Pedestrian	
	v/c	Density	Two-Lane ru	Two-Lane rd	Multilane ru	Multilane rd	Control Delay	ATS	Control Delay	Score	Score	
A	≤ 0.34	≤ 11	≤ 0.12	> 0.917	≤ 0.30	≥ 0.29	≤ 5 sec	> 42 mph	≤ 5 sec	≤ 1.5	≤ 1.5	
B	≤ 0.56	≤ 18	≤ 0.24	> 0.833	≤ 0.49	≥ 0.47	≤ 10 sec	> 34 mph	≤ 10 sec	≤ 2.5	≤ 2.5	
C	≤ 0.76	≤ 26	≤ 0.39	> 0.750	≤ 0.70	≥ 0.68	≤ 15 sec	> 27 mph	≤ 15 sec	≤ 3.5	≤ 3.5	
D	≤ 0.90	≤ 35	≤ 0.62	> 0.667	≤ 0.90	≥ 0.88	≤ 20 sec	> 21 mph	≤ 20 sec	≤ 4.5	≤ 4.5	
E	≤ 1.00	≤ 45	≤ 1.00	> 0.583	≤ 1.00	≥ 1.00	≤ 40 sec	> 16 mph	≤ 40 sec	≤ 5.5	≤ 5.5	
F	> 1.00	> 45	≤ 1.00	≤ 0.583	> 1.00	< 1.00	> 40 sec	≤ 16 mph	> 40 sec	> 5.5	> 5.5	

v/c = Demand to Capacity Ratio

% FFS = Percent Free Flow Speed

ATS = Average Travel Speed

ru = Rural Undeveloped

rd = Rural Developed